Early Journal Content on JSTOR, Free to Anyone in the World

This article is one of nearly 500,000 scholarly works digitized and made freely available to everyone in the world by JSTOR.

Known as the Early Journal Content, this set of works include research articles, news, letters, and other writings published in more than 200 of the oldest leading academic journals. The works date from the mid-seventeenth to the early twentieth centuries.

We encourage people to read and share the Early Journal Content openly and to tell others that this resource exists. People may post this content online or redistribute in any way for non-commercial purposes.

Read more about Early Journal Content at http://about.jstor.org/participate-jstor/individuals/early-journal-content.

JSTOR is a digital library of academic journals, books, and primary source objects. JSTOR helps people discover, use, and build upon a wide range of content through a powerful research and teaching platform, and preserves this content for future generations. JSTOR is part of ITHAKA, a not-for-profit organization that also includes Ithaka S+R and Portico. For more information about JSTOR, please contact support@jstor.org.

not only by the few new species, but chiefly by the numerous varieties, especially in Alnus.—J. M. C.

To ACCOMPANY his secondary school text-books, which imply a considerable amount of laboratory work in botany. Mr. J. Y. BERGEN has prepared a *Notebook*,[8] in which he has arranged directions for experiments, chiefly physiological, with various useful suggestions to the student, intending thereby to promote neat and thorough reports of the work Most teachers will prefer the loose-leaf notebook, which permits criticism and correction without permanently marring the record. The laboratory directions of course minimize dictation and copying, but the forms also curtail freedom and initiative which it is equally important to cultivate.—C. R. B.

MISS PERKINS[9] has published the second fascicle of her contributions to the flora of the Philippine Islands. Numerous families are represented more or less extensively, the more important contributions dealing with Marantaceae, Leguminosae (9 n. spp.), the genus Canarium (Burseraceae) with 14 new species, Tiliaceae (9 n. spp.), Sterculiaceae (5 n. spp.), Asclepiadaceae (by R. SCHLECHTER and O. WARBURG) with 24 new species and a new genus (*Dorystephania*), and Gramineae (by C. MEZ and R. PILGER) with 4 new species.—J. M. C.

THE SIXTH FASCICLE of Roth's *Europäischen Laubmoose*[10] begins the Bryaceae, describing, with the help of ten plates, 21 species of Webera, 108 of Bryum, and 13 of other genera. The seventh fascicle completes the Bryaceae, Mniaceae, Meeseaceae, Aulacomniaceae, Bartramiaceae, Timmiaceae, and begins the Polytrichaceae. The ten plates, however, are almost wholly devoted to Bryaceae.—C. R. B.

MAIDEN,[11] in the fourth part of his revision of Eucalyptus, presents *E. incrassata* Labillardière and *E. foecunda* Schauer, the description in each case being followed by discussion of synonymy, range, and affinities.—J. M. C.

NOTES FOR STUDENTS.

PORODKO, as a result of his researches on the oxidases,[12] concludes that they probably do not take part in the process of respiration. He also contributes some facts to the technique of the guaiac reaction.—C. R. B.

---

[8] BERGEN, J. Y., Notebook to accompany Bergen's text-books of botany or for general use in botanical laboratories of secondary schools. 4to. pp. 144. Boston: Ginn & Co. 1904. 75 cents.

[9] PERKINS, J., Fragmenta florae Philippinae. Fasciculus II. pp. 67–152. *pls. 1–3.* Leipzig: Gebrüder Borntraeger. 1904. *M*5.

[10] ROTH, GEORG, Die europäischen Laubmoose. 2 Band. 6 Lieferung. Imp. 8vo. pp. 1–128. *pls. 1–10.* 7 Lieferung. pp. 129–256. *pls. 11–20.* Leipzig: Wilhelm Engelman. 1904. Each *M* 4. (Parts not sold singly.)

[11] MAIDEN, J. H., A critical revision of the genus Eucalyptus. Part IV. pp. 93–124. *pls. 13–24.* Government of New South Wales: 1904.

[12] PORODKO, T., Zur Kenntniss der pflanzlichen Oxidases. Beihefte Bot. Cent. **16**:1–10. 1904.

BERNARD adds his name[13] to the increasing list of those who are unable to obtain evidence of photosynthesis outside the organism. Using various methods he "obtained no positive appreciable results."—C. R. B.

LOCK[14] has made some interesting observations upon a variety of *Turnera ulmifolia* that has become naturalized in Ceylon. The flowers are distinctly heterostylic and apparently absolutely self-sterile, and the pollinating insects are bees, notably *Apis indica*. The seeds are most commonly dispersed by the aid of harvesting ants.—J. M. C.

A NOTE in the July number regarding the experiments of KOERNICKE on radium emanations should have included reference to the experiments of DIXON, who found seedlings retarded in growth without serious injury. Experiments on cultures of 48 species of bacteria by DIXON and WIGHAM[15] showed inhibition of development, confirming the results of other observers.—C. R. B.

FRIES[16] has published an interesting article on ornithophily in the South American flora, arriving at the conclusion that there is no distinct difference between ornithophilous and entomophilous flowers, and that the same species may be pollinated as well by insects as by humming birds in one place, while in another locality either of these agents may be acting.—P. OLSSON-SEFFER.

INTERCELLULAR protoplasm in the cotyledon of *Lupinus albus* is reported by KNY[17]. This protoplasm does not seem to differ from that contained within the cells, except that it contains no nuclei, starch grains, or plastids. Ripe seeds were used in the investigations. The behavior of the intercellular protoplasm during the germination of the seed will be described in a future paper. —CHARLES J. CHAMBERLAIN.

IN A PAPER on the flora of the mountains of northern Finland, BORG[18] gives the results of his studies of the plant distribution within two of the zones occurring in these mountains, none of them higher than 1200^{m}. The paper discusses in detail the composition of the mountian flora and the origin of its components.

---

[13] BERNARD, CH., Sur l'assimilation chlorophyllienne. Beihefte Bot. Cent. **16**: 36–52. 1904.

[14] LOCK, R. H., Ecological notes on *Turnera ulmifolia* L., var. *elegans* Urban. Annals Roy. Bot. Gard. Peradeniya **2**:107–119. 1904.

[15] DIXON, H. H., and WIGHAM, J. T., Preliminary note on the action of the radiations from radium bromide on some organisms. Sci. Proc. Roy. Dublin Soc. N. S. **10**^{2}:178–192. *pls. 16–18*. 1904.

[16] FRIES, R. E., Beiträge zur Kenntniss der Ornithophilie in der südamerikan ischen Flora Arkiv for Botanik **1**:389–440. 1904.

[17] KNY, L., Studien über intercellulares Protaplasma. I. Ber. Deutsch. Bot. Gesells. **22**:29–35. 1904.

[18] BORG, VÄINÖ, Beiträge zur Kenntniss der Flora und Vegetation der finnischen Fjelde (alpinen und subalpinen Gebirge). I. Acta Soc. pro Fauna et Flora Fennica **25**: no. 7. pp. 170.

The promised second part dealing with the vegetation will probably be of greater interest.—P. OLSSON-SEFFER.

WIESNER describes[19] casting of leaves in summer due to deficient light and to consequent interference with photosynthesis, which is distinct from a similar effect of drouth and heat and not continuous with the autumn defoliation. The loss amounts to 8–30 per cent. of the foliage in sensitive trees. It begins, in those trees which complete their leaf formation in spring, when the midday sun has reached the same elevation at which foliation was completed, whereas it is almost imperceptible in trees whose foliation extends into the summer.—C. R. B.

BEARD[20] has discussed "the track of heredity" in plants and animals, chiefly the latter. A luminous statement in reference to plants is as follows: "In the embryo-sac of Pinus, which is the gametophyte, there are only four germ-cells. In the corresponding structure in flowering plants there are perhaps three, or at most six; while, as is well known, the male gametophyte of a flowering plant is represented by one or two vegetative cells and one or two germ-cells." This may be clear to a zoologist, but its interpretation is beyond the powers of the plant morphologist.—J. M. C.

BLAKESLEE[21] has made preliminary announcement of his results in a study of the methods of reproduction in Mucorineae. It seems that zygospore production in this group "is conditioned by the inherent nature of the individual species and only secondarily or not at all by external factors." Two methods of zygospore formation are recognized, and upon this basis Mucorineae may be divided into two groups designated as "homothallic" and "heterothallic," the terms corresponding to "monoecious" and "dioecious" among higher forms. The general conclusions are that the formation of zygospores is a sexual process, that the mycelium of a homothallic species is bisexual, that the mycelium of a heterothallic species is unisexual, and that among the heterothallic species certain ones have a distinct differentiation of sex. It is interesting to note that in conjugation the swollen portions ("progametes") from which the gametes are cut off do not "grow toward each other," as commonly stated, but arise as a result of the stimulus of contact between hyphae, and are from the outset adherent.—J. M. C.

MASTERS[22] has published a synopsis of the genus Pinus, the purpose of which he states is "to add to our knowledge of the species and to facilitate their determination." The genus is limited, as is usual now, to those abietinous forms in which both shoots and leaves are dimorphic. A somewhat full discussion of the value of the histological characters often used in classification reaches the conclusion that they have no greater intrinsic value than any other characters, being useful but not infallible guides, likely to vary more than some other characters. The two great divisions proposed are TENUISQUAMAE (with relatively thin cone-scales) and CRASSISQUAMAE (with cone-scales notably thickened toward the apex). Under the former are the sections *Strobus* (10 spp.) and *Cembra* (3 spp.); under the latter the sections *Integrifoliae* (8 spp.), *Serratifoliae* (4 spp.), *Indicae* (3 spp.), *Ponderosae* (12 spp.), *Filifoliae* (7 spp.), *Cubenses* (5 spp.), *Sylvestres* (10 spp.), and *Pinaster* (11 spp.). A useful feature of the contribution is a chronological list of specific names, extending from 1753 to 1903. The author's long study of the genus makes this contribution unusually rich in facts and suggestions.—J. M. C.

---

[19] WIESNER, J., Über Laubfall infolge Sinkens des absoluten Lichtgenusses (Sommerlaubfall). Ber. Deutsch. Bot. Gesells. **22**:64–72. 1904.

[20] BEARD, J., The track of heredity in plants and animals. Trans. and Proc. Bot. Soc. Edinburg **22**:126–155. *figs. 3.* 1902.

[21] BLAKESLEE, ALBERT FRANCIS, Zygospore formation a sexual process. Science N. S. **19**:864–866. 1904.

[22] MASTERS, MAXWELL T., A general view of the genus Pinus. Jour. Linn. Soc. Bot. **35**:560–659. *pls. 20–23.* 1904.

TRANSEAU[23] has made a preliminary announcement of certain results in connection with the investigation of the causes of xerophily in bog plants. Using *Rumex Acetosella*, great modification in the appearance and structure of the leaves was produced by varying the conditions; for example, growing in moist conditions and in dry sand. Also, the marked xerophilous characters induced by growth in the latter substratum were also obtained by growth in an undrained wet sphagnum substratum of low temperature. Further, under these conditions the drops of oil or resin, characteristic of bog xerophytes, were formed in the epidermis and in the cells adjacent to the bundles. He concludes that these modifications in the case of the bog habitat are a response to the unfavorable conditions for absorption by the roots, due to low temperature and lack of aeration. It is also suggested that the development of palisade tissue in response to strong light is correlated with drouth rather than with light, resulting from increased transpiration. "The elongated palisade cells, therefore, are an adaptation for the ready transfer of food materials in the leaf tissues, under the stress of a reduced water supply."—J. M. C.

HABERLANDT in reexamining the perceptive mechanism of heliotropic leaves finds three types:[24] (1) those in which the lamina alone is sensitive; *e. g.*, *Begonia discolor* and probably shade plants in general; (2) those whose lamina and petiole are perceptive; *e. g.*, *Tropaeolum* spp., *Malva verticillata* (*fide* VÖCHTING), and probably climbing and twining plants; (3) those whose petioles or motor organs are sensitive; *e. g.*, Phaseolus. He suggests that in euphotometric foliage leaves the cells of the upper epidermis constitute a sensory epithelium for the perception of light. Sometimes all cells share alike in this function, but in some plants certain cells are specialized, forming a more localized sense organ. In either case the essential feature is a sensitive layer of protoplasm and an apparatus which concentrates the light upon this plasma, of which certain regions are either more or less strongly illuminated when the organ is out of its normal relation to the incident light. Two types are distinguished: those in which the outer face of the epidermal cell is convex, and those in which the inner wall is convex toward the mesophyll or is the frustum of a cone. The hypothesis is not supported by any experimental evidence, but is constructed merely from anatomical observations and *a priori* reasoning. (See also p. 157.)—C. R. B.

---

[23] TRANSEAU, E. N., On the development of palisade tissue and resinous deposits in leaves. Science N. S. **19**:866–867. 1904.

[24] HABERLANDT, G., Die Perception des Lichtreizes durch das Laubblatt. Ber. Deutsch. Bot. Gesells. **22**:105–119. *pl. 8.* 1904.

WAGER[25] has studied the nucleolus during nuclear division in the root of Phaseolus. After a summary of the extensive literature and a description of methods, the subject is presented under the following heads: the resting nucleus, structure of the nucleolus, changes in the nucleolus during the prophase, and reconstitution of the daughter-nuclei. The main conclusions are that the nucleolus simply forms a part of the nuclear network, in which chromatin or chromatin-substance may be stored, and therefore is not an independent organ of the nucleus; that it is concerned in the formation of the chromosomes, and possibly also in the production of the spindle, and that a portion of it may in some cases be extruded into the cytoplasm and there disappear; that in the reconstruction of the daughter-nuclei the chromosomes unite together in a more or less irregular mass or thick thread, out of which is evolved the nucleolus and nuclear network, the major part of the chromatin passing ultimately into the nucleolus, except in cases where division again immediately takes place. Attention is called to the fact that if these conclusions are correct, the part played by the chromosomes in heredity will need revision, and that the nucleolus as well as the chromosomes will have to be taken into account.—J. M. C.

SALMON[26] has published the results of experiments with the so-called "biologic forms" of the Erysiphaceae, that is, races of individuals morphologically identical, but differing physiologically in possessing distinctive and sharply defined powers of infection. This specialization of parasitism has been found to be associated with both conidia and ascospores. The present experiments show that the restriction in power of infection characteristic of "biologic forms" breaks down if the vitality of the leaf is interfered with in certain ways, as by wounding. It was found also that conidia produced on a wounded leaf that was normally immune to such attack would infect uninjured leaves of the plant in question; by means of this "bridge" passing from one host plant to another. Injuries to leaves in nature, resulting in such bridging, were observed to be made by the "green fly" (Aphis). Therefore, in the evolution of "biologic forms" two sets of factors are at work: one, called "specializing factors," tending to specialize parasitism and deriving from a single morphological species a number of "biologic forms;" the other, called "generalizing factors," bridging these differences and causing "the separate streams of evolving 'biologic forms' to flow into each other." It is thought that these facts may explain the sudden appearance of a parasitic disease on plants which had hitherto proved immune.—J. M. C.

---

[25] WAGER, HAROLD, The nucleolus and nuclear division in the root apex of Phaseolus. Annals of Botany **18**:29–55. *pl. 5.* 1904.

[26] SALMON, ERNEST S., Cultural experiments with "biologic forms" of the Erysiphaceae. Phil. Trans. Roy. Soc. London B. **197**:107–122. 1904.

DUVEL[27] has been investigating, since 1899, the causes affecting the vitality of seeds, with special reference to the conditions under which they are stored commercially. The general method pursued has been to store seed experimentally under all sorts of conditions, and afterward to ascertain the exact percentage of germination. The first factors determining the vitality of a seed are maturity, weather conditions at the time of harvesting (damp weather lowering the vitality), and methods of harvesting and curing (especially avoiding excessive heating). The life-period of a seed that has met these favorable conditions depends on environment, but the average life varies greatly in different families, genera, or even species. There is no relation between the longevity of plants and the viable period of the seeds they produce. With proper precautions, the life of seeds may be greatly prolonged beyond the present record, and in commercial handling moisture is the chief factor in shortening it. It seems that seeds can endure any degree of drying without injury, and that such a reduction in the water content is necessary if vitality is to be preserved for a long period of years. It is said that "respiration" is not necessary to the life of a seed, and that the evidence goes to show that it "is not dependent on the preservation of the particular ferment involved or on the zymogenic substance giving rise to the enzyme." "The one important factor governing the longevity of good seed is *dryness.*" —J. M. C.

S. M. COULTER[28] has published a preliminary account of his investigation of swamps. The paper is intended to collect and group together the facts concerning the swamp areas investigated as a basis for a future study of the problems involved. The data have been obtained from field studies extending through three years and including swamps of six types: (1) a drained swamp along Crooked River, in the northern part of the lower peninsula of Michigan; (2) an undrained tamarack and black spruce swamp on North Manitou Island, Lake Michigan; (3) a slowly drained arbor vitae swamp on the same island; (4) the small, swampy lakes south of Chicago; (5) Horseshoe Lake, an old "ox-bow" cut off from the Mississippi River in southwestern Illinois; and (6) a cypress and tupelo gum swamp in northeastern Arkansas. The discussion of these types consists of a description of the present topographical condition of each area, together with a summary of the principal plant forms that characterize it. In short, the paper is a brief comparison of certain widely separated swamp areas of different types expressed in terms of physiography and taxonomy, the history and dynamics of each being reserved for later treatment. A somewhat detailed account is given of *Nyssa uniflora,* special attention being called to the very much enlarged base, an enlargement which does not become conspicuous where the water supply is scanty; and of *Taxodium distichum* with its enlarged base and "knees," neither of which phenomena appears in connection with dry soil. The half-tone reproductions of good photographs are excellent and form a substantial addition to the data presented by the paper.—J. M. C.

---

[27] DUVEL, J. W. T., The vitality and germination of seeds, pp. 96. Bull. 58. Bur. Pl. Industry, U. S. Dept. Agric. May 28, 1904.

[28] COULTER, SAMUEL MONDS, An ecological comparison of some typical swamp areas. Rep. Mo. Bot. Gard. **15**:39–71. *pls. 24.* 1904.

REGENERATION.—WINKLER'S [29] experiments on Torenia show that detached leaves of this plant may produce buds from any part of the upper epidermis. The shoots proceeding from these buds bloom at once, independent of the age of the parent plant and of the place on the plant from which the leaf is taken. The term "regeneration" should be confined to cases such as this, where fully differentiated cells resume the embryonal state.—SIMON[30] has studied the exact region of regeneration in root tips, and determined by microscopic observation and by experiment that the pericambium is essential. He distinguishes direct regeneration or replacement of the tip from partial regeneration, where the pericambium grows out from the cut surface in the form of a ring and the new tissue eventually spreads over the whole cut surface. The latter variety of regeneration occurs when more than about 0.75^{mm} of the root tip is cut off; if $1\text{-}3^{\mathrm{mm}}$ is cut off, no regeneration takes place, but lateral roots replace the primary root. Three periods of regeneration are distinguished: (1) reaction, time occupying about one day, (2) introductory phase, consisting in pericambial division, (3) definite formation of the new tissue.—VÖCHTING[31] calls attention to the marked lack of plasticity in *Araucaria excelsa.* The bilateral branches of the first order when used as cuttings produce a plant which retains the bilateral habit; branches of the second order root slowly and grow in length without branching; only the tip of the main axis gives a plant of the regular radial habit. As to the nature of regeneration in general, the writer holds that the capacity to regenerate, though not always of use either to the individual plant or to the species, is as characteristic a phenomenon as is growth.—M. A. CHRYSLER.

THE MODE in which light affects perceptive organs is awakening interest. In his paper summarized on p. 154, HABERLANDT suggests that perhaps light is perceived by reason of the difference in pressure between illuminated and dark areas. The same suggestion is made by JOST,[32] but neither mentions RADL,[33] who seems to have ascribed phototropism in animals to the same fundamental cause, though he thinks of the reactive pull rather than pressure. Utilizing the figures calculated by MAXWELL (1873) and recently determined experimentally by NICHOLS and HULL,[34] the pressure on a cell $.01^{\mathrm{mm}}$ square in full sunlight would scarcely amount to 7×10^{-11} milligram! To believe that a plant cell could discriminate between 0 and $.000{,}000{,}000{,}07^{\mathrm{mg}}$ pressure (*i. e.*, of darkness and of full sunlight) makes a severe test of one's credulity; but when one remembers that some plants discriminate between darkness and the light of one candle at a distance of 50^{m}, and that the phototropic optimum of Vicia lies at 3 candles, the reason simply balks at any possibility of the perception of such differences of pressure.

---

[29] WINKLER, H., Ueber regenerative Spossbildung auf den Blättern von *Torenia asiatica.* Ber. Deutsch. Bot. Gesells. **21**:96–107. 1903.

[30] SIMON, S., Untersuchungen über die Regeneration der Wirzelspitze. Jahrb. Wiss. Bot. **40**:103–143. 1904.

[31] VÖCHTING, H., Ueber die Regeneration der *Araucaria excelsa.* Jahrb. Wiss. Bot. **40**:144–155. 1904.

[32] Vorlesungen über Pflanzenphysiologie 586. Jena. 1904.

[33] Unters. über den Phototropismus der Tiere. Leipzig. 1903.

RADL, who has enunciated this idea regarding phototropism in animals,[33] and who endeavored unsuccessfully to test it experimentally with them, has turned to seedlings for confirmation. In a late paper[35] he endeavors to minimize the objection grounded on the minuteness of the energy involved (which seems absolutely conclusive against the hypothesis), and describes briefly a series of experiments in which he hung seedlings horizontally in a moist chamber by a cocoon filament, so that they were poised at right angles to light admitted through a slit, while control seedlings were fastened in a like position. He then observed whether or not the free ones were caused to rotate, directing their apices toward the light. Arguing that according to the extent of such rotation any curvature they might also attain would be less than in the fixed controls, he interprets his 51 results as giving 39 cases in support of his hypothesis and 12 against it. The sources of error both in experimentation and interpretation are so numerous and the results are so inharmonious as to leave the matter still *in statu quo*. The author recognizes the inconclusiveness of his results, but thinks them suggestive. —C. R. B.

MUCH HAS BEEN written regarding the mycoplasm theory put forth by Dr. JAKOB ERIKSSON, of Sweden, to account for outbreaks of wheat rust when external infection from aecidiospores or uredospores is presumably impossible. In a recent article[36] ERIKSSON gave a concise statement of his position, in order to set right his critics and opponents in regard to the fundamental conception of his theory.

He has now laid the botanical public under a debt of gratitude by publishing a first instalment of his histological studies which form the solid basis of his theory, and by illustrating them with excellent colored plates.[37] Beginning is made with a study of the vegetative life of the yellow rust of wheat, *Puccinia glumarum*, a species not known outside of Europe, and for which no aecidium has been discovered.

---

[34] Physical Review **17**: 101. 1903.

[35] RADL, E., Ueber die Anziehung der Organismen durch das Licht. Flora **93**: 167–178. 1904.

[36] Archiv für Botanik **1**: 139–146.

[37] ERIKSSON, J. and TISCHLER, G., Ueber das vegetative Leben der Getreiderostpilze. I. *Puccinia glumarum* in der heranwachsenden Weizenpflanze. Kongl. Svensk. Wet. Akad. Handl. **37**:—. [no. 6. pp. 19.] *pls. 3.* 1904.

After an introduction, in which some of the difficulties in explaining infection and distribution are indicated that have arisen since DEBARY'S time, the materials and methods for the investigation are described. Modern histological methods were employed. Best results were obtained with FLEMMING'S fixative, and FLEMMING'S safranin-gentian-violet-orange stain. From October 6 to October 27, 1902, and April 28 to June 18, 1903, no trace of mycelium was found in any of the microtome sections, but in many cells a protoplasmic mixture occurred, which the author has called mycoplasm, because he believes it to be a mixture of the common protoplasm of the cell and the protoplasm of the rust derived from the germinating seed. The mycoplasm does not at first interfere with the chlorophyll grains or nucleus, but these disappear after a time, and the cell wall is filled with a uniform granular mass.

As the wheat plant continues to grow there appears in the intercellular spaces similar granular masses, which soon become filamentous, although possessing no walls or nuclei. As development proceeds, however, well-defined nuclei appear. This naked intercellular stage, whether with or without nuclei, the author designates as protomycelium. This stage is soon followed by the appearance of bounding walls to the filaments, and after a time cross walls, when the ordinary vegetative state of the fungus is attained.

Although the author has not been able to trace the transition between the form within the cells, mycoplasm, and the form between the cells, protomycelium, he is confident that the first gives rise to the second.

Whether or not this clearly stated and well-illustrated article carries conviction to the reader, it nevertheless is a satisfaction to be able so clearly to apprehend the grounds upon which the mycoplasm theory is based.

In a recent article KLEBAHN[38] has supplemented one of his earlier articles[39] with details bearing directly upon the mycoplasm theory. He gives figures in the text showing essentially the same phenomena which ERIKSSON has so strikingly set forth with colored plates. The lack of perfect agreement between the two authors can well be ascribed to manipulation of the preparations. But the conclusions drawn from these studies by KLEBAHN are wholly different from those reached by ERIKSSON, and favor a theory of abnormal and accidental conditions rather than a theory of mycoplasma.—J. C. ARTHUR.

---

[38] KLEBAHN, H., Einige Bemerkungen über das Mycel des Gelbrostes und über neueste Phase der Mykoplasma Hypothese. Ber. Deutsch. Bot. Gesells. **22**:255–261. 1904.

[39] Zeits. Pfl. Krank. **10**:88 et seq. 1900.